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job stress in female workers at geriatric health services facilities  
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## Relationship between subjective job stress and factors related to job stress in female workers at geriatric health services facilities in Hiroshima and Ehime prefecture

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### Abstract

**【Background】** Use of the Brief Job Stress Questionnaire (BJSQ) stress analysis system can have great significance for primary prevention given that employees are not always conscious of their own mental health condition and may not realize they are suffering stress. Further, the BJSQ can reveal other concealed factors connected to job-related stress. Consequently, employers are encouraged to not only conduct the BJSQ but also establish concrete plans to alleviate job-related stress. However, if individuals understand the factors related to subjective job-related stress, they can more easily cope with the stress when they encounter it. **【Purpose】** The objective of this study was to shed light on the relationship between degree of subjective job-related stress and factors related to job stress in female workers at geriatric health services facilities (GHSFs) using the Brief Job Stress Questionnaire (BJSQ). **【Methods】** We delivered the questionnaire consisting of the BJSQ along with a measurement of lifestyle, subjective well-being, and a number of other factors, to all employees across three GHSFs. Because GHSF workers are predominantly women, we analyzed data derived from the questionnaires completed by female employees. The subjects comprised 297 women aged from 20 to 73 years old. Using multiple linear regression analysis, we calculated the  $\beta$  value (95% confidential intervals) between subjective job-related stress (dependent factor) and other factors (independent factors) that were significantly associated according to Spearman rank correlations. **【Results】** The factors of “quantity of psychological burden at work”, and “satisfaction with occupational life” showed statistically positive relation to subjective job-related stress. On the other hand, the factors of “regularity of walking and exercise”, and “social capital in the work place”, showed negative relation using linear regression analysis. **【Conclusion】** Employers need to not only conduct the BJSQ but also establish specific plans to alleviate job-related stress. For female employees working at GHSFs, approaches that minimize factors producing subjective job-related stress are important to alleviate their subjective job-related stress, leading to an improvement in mental health.

## **Introduction**

Based on the revision of the Occupational Health and Safety Act, it has become compulsory for employers to carry out job-related stress surveys in the workplace since December 2015. Specifically, employers are obligated by law to assess job-related stress in workplaces in which there are 50 employees or more. Using the Brief Job Stress Questionnaire (BJSQ) that consists of 57 questions, it is possible to objectively understand the factors which cause job-related stress, mental and physical reactions to job-related stress, and other factors that affect reactions to stress.

It seems to be difficult for employees to be aware of their own stress levels. However, when employees can understand the factors related to subjective job-related stress, they can more easily cope with stress when they encounter it. The objective of this study was to shed light on the relationship between degrees of subjective job-related stress and factors related to job stress in female workers (including care staff, nurses, physical therapists, occupational therapists, and office clerks) at geriatric health services facilities (GHSFs) using the BJSQ.

## **Subjects and Methods**

We administered the questionnaire consisting of the BJSQ, along with an assessment of lifestyle, subjective well-being, and a number of other factors, to all employees in three GHSFs. Because GHSF workers are predominantly women, we analyzed the data derived from the questionnaires completed by female employees. The subjects comprised 297 women aged from 20 to 73 years old. We analyzed the following data; (1) our own questions relating to subjective job-related stress (Did you feel job-related stress during the preceding month? Answers: 1, Almost never; 2, Sometimes; 3, Often; 4, Almost always), (2) stress-related factors (stressors and stress responses) derived from the BJSQ, (3) other environmental support factors in the BJSQ (superiors, co-workers, spouse, family, friends, etc.) which influence job-related stress, (4) demographic factors - motivation in life, economic condition, working arrangements (day/night shift), (5) health associated factors - subjective well-being, self-rated health (SRH), sleep quality, use of sleep medications, regularity of walking and exercise, laughing in daily life, smoking, alcohol consumption, and (6) total score of work social capital (Total score of reciprocity, reliability and network).

First, using Spearman Rank Correlation (a univariate analysis), we calculated the Spearman rank correlation coefficient to determine the relationship between (1) subjective job-related stress and the other (2-6) factors. Second, using multiple linear regression analysis, we calculated  $\beta$  values (95% confidential intervals) between (1) subjective job-related stress (dependent factor) and the other factors (independent factors) that were statistically significantly associated according to Spearman rank correlation. A statistically significant association was defined as  $p < 0.05$  for all analyses using SAS Version 9.4 (SAS Japan). Our study was approved by the Ethical Committee of Ehime University, Department of Education.

**Results**

We carried out the survey by distributing questionnaires to 297 people working at three GHSFs and received 292 completed responses, a response rate of 98 percent. The mean age of respondents was 44.13±10.88 (20-73 years old; Fig. 1). Of 292 respondents, 108 (37.0%) answered “Almost always” and 145 (49.7%) answered “Often” to the question relating to subjective job-related stress (Fig. 1).

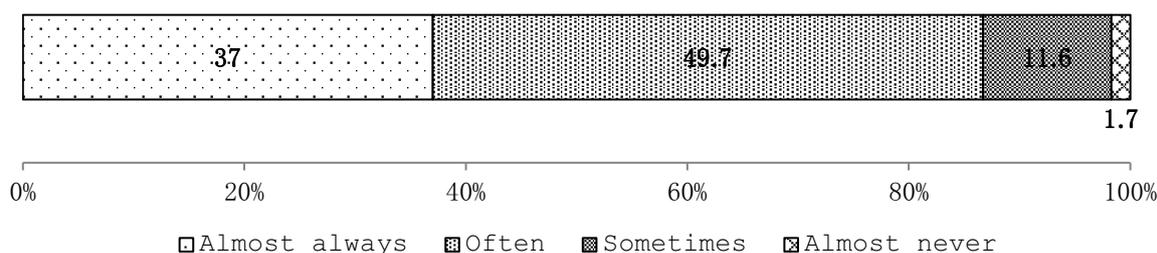


Fig. 1 Percentage of responses related to subjective job-related stress. Individuals were asked whether they felt job-related stress during the preceding month.

Regarding demographic characteristics, “age”, “motivation in life” and “economically sufficient life style” were negatively related to subjective job-related stress. Regarding the health-associated factors, “subjective well being”, “self-rated health”, “using sleep medications”, “regularity of walking and exercise”, “laughing in daily life”, “smoking” were negatively associated with subjective job-related stress, and “alcohol consumption” was positively associated with subjective job-related stress (Table 1).

Regarding the occupational stress-related factors, “quantity of psychological burden at work”, “quality of psychological burden at work”, “amount of stress from interpersonal relationships” were positively related to subjective job-related stress “skill in dealing with job”, “aptitude for job” and “motivation at work” were negatively related to subjective job-related stress (Table 2).

Regarding working environment support, “support from superiors”, “support from co-workers”, “support from spouse/family/friends”, and “social capital” showed significantly negative relationship with subjective job-related stress. On the other hand, “satisfaction with occupational life” showed significantly positive relationship with job-related stress (Table 3).

Table 1 Lifestyle factors related to a higher level of subjective job-related stress

	Health associated factors										
	Attribute					Health associated factors					
	Age	Motivation in life	Economically sufficient life style	Day/night shift	Subjective well being	Self-rated health	Using sleep medications	Regularity of walking and exercise	Laughing in daily life	Smoking	Alcohol consumption
<b>Subjective job-related stress</b>	-0.203	-0.213	-0.194	0.102	-0.230	-0.244	-0.021	-0.214	-0.151	-0.145	0.133
<b>p-value</b>	< 0.001	< 0.001	0.001	0.081	< 0.001	< 0.001	< 0.001	< 0.001	0.010	0.013	0.023

Table 2 Occupational stress factors related to a higher level of subjective job-related stress

	Occupational stress factors						
	Quantity of psychological burden at work		Amount of stress from interpersonal relationships		Work environment		Motivation at work
	Quantity of psychological burden at work	Quality of psychological burden at work	Amount of stress from interpersonal relationships	Work environment	Skill in dealing with job	Utilization of skills	Motivation at work
<b>Subjective job-related stress</b>	0.333	0.210	0.345	0.090	-0.210	-0.084	-0.187
<b>p-value</b>	< 0.001	< 0.001	0.018	0.126	< 0.001	0.153	0.001

Table 3 Working environment support and social capital related to a higher level of subjective job-related stress

	For working environment support			
	Support from superiors	Support from co-workers	Support from spouse/family/friends	Satisfaction with occupational life
Subjective job-related stress	-0.204	-0.167	-0.118	0.361
p-value	< 0.001	0.004	0.043	< 0.001
				Social capital
				-0.381
				< 0.001

Table 4 Final factors related to subjective job-related stress using multiple linear regression analysis

Factor	$\beta$	95% confidence interval	p-value
Quantity of psychological burden at work	0.147	(-0.235 - 0.060)	0.001
Satisfaction with occupational life	0.150	(-0.245 - 0.055)	0.002
Age	-0.010	(-0.017 - -0.003)	0.004
Regularity of walking and exercise	-0.193	(-0.351 - -0.036)	0.017
Social capital	-0.055	(-0.009 - -0.101)	0.019

Finally, with using multiple linear regression analysis, the factors of “quantity of psychological burden at work” and “satisfaction with occupational life”, were positively associated with subjective job-related stress, and the factors of “regularity of walking and exercise”, and “social capital” and “age” were negatively associated with subjective job-related stress.

## **Discussion**

We surveyed the degree of subjective job-related stress experienced by female workers in GHSFs, focusing on factors related to an increase in subjective job-related stress. It is well established that excessive amount of work is related to an increase in job-related stress. Our study also showed that jobs with a high psychological impact are related to an increase in subjective job-related stress.

A low frequency in the regularity of walking and exercise is related to an increase in subjective job-related stress, leading to the idea that moderate exercise may possibly alleviate job-related stress. Low levels of social capital in the workplace are also related to an increase in subjective job-related stress. In our view, an atmosphere of trust, reciprocity and having a social network play an important role in alleviating subjective job-related stress.

According to Kyriacou, there is a negative correlation between satisfaction with occupational life and stress. On the other hand, our results showed that a subjective job-related stress is positively associated with satisfaction with occupational life. Nakamura reported in a nursing survey that, because nurses have sufficient coping skills to deal with occupational stress in relation to years of experience, they have a high level of job satisfaction, irrespective of experiencing high levels of stress. Therefore, results from our current study of staffs at GHSFs are similar to those from the Nakamura's report. As the subjects of our study were women of various occupations not only nurses, it is needed to do further research in order to generalize our results.

The person who gets satisfaction from work thinks that the subjective stress increased because there is burden at the same time. However, because our results contradict commonly held views on stress, it is suggested that we confirm our results by further research.

Use of the BJSQ stress analysis system can have great significance for primary prevention given that employees are not always conscious of their own mental health and may not realize they are suffering stress. Further, the BJSQ can reveal other concealed factors connected to job-related stress. Consequently, employers are encouraged to not only conduct the BJSQ but also establish concrete plans to alleviate job-related stress. In conclusion, for female employees working at GHSFs, approaches that minimize factors producing subjective job-related stress are needed to alleviate their subjective job-related stress (Health associated factors, Occupational stress factors, For working environment support), leading to an improvement in their mental health.

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